

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

29 NOV 1933

Received at London Office.....

Date of writing Report 15th Nov. 1933, When handed in at Local Office 27 Nov. 1933, Port of GLASGOW.

No. in Survey held at PORT GLASGOW & GLASGOW Date, First Survey 26th May Last Survey 22nd Nov. 1933
Reg. Book. (Number of Visits.....)

39918 on the S.S. 'HARCALO'

Tons { Gross 5080
Net 3033

Built at PORT GLASGOW. By whom built LITHGOWS LTD. Yard No. 863. When built 1933.

Owners NATIONAL STEAMSHIP CO. LTD. Port belonging to LONDON.

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD. Contract No. 863 When fitted 1933

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double wire.

Pressure of supply for Lighting 110. volts, Heating - volts, Power 110. volts.

Direct or Alternating Current, Lighting Direct. Power Direct.

If alternating current system, state frequency of periods per second -

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off Yes.

Generators, do they comply with the requirements regarding rating Yes., are they compound wound Yes.

are they over compounded 5 per cent. Yes., if not compound wound state distance between each generator -

Where more than one generator is fitted are they arranged to run in parallel No., is an adjustable regulating resistance fitted in

series with each shunt field Yes.

Are all terminals accessible, clearly marked, and furnished with sockets Yes., are they so spaced or shielded that they cannot be accidentally earthed,

short circuited, or touched Yes. Are the lubricating arrangements of the generators as per Rule Yes.

Position of Generators Main Engine Room.

is the ventilation in way of the generators satisfactory Yes., are they clear of all inflammable material Yes.

if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators

- and - are the generators protected from mechanical injury and damage from water, steam or oil Yes.

are their axes of rotation fore and aft Yes.

Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers and

their respective generators in metallic contact Yes.

Main Switch Boards, where placed Main Engine Room on bulkhead adjacent to 14 Kw. Generator.

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard -

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes.

are they protected from mechanical injury and damage from water, steam or oil Yes., if situated near unprotected

woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards - and -

are they constructed wholly of durable, non-ignitable non-absorbent materials Yes, is all insulation of high dielectric strength and of

permanently high insulation resistance Yes, if semi-insulating material is used, are all conducting parts insulated from the slab

with mica or micamite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes

and is the frame effectively earthed Yes. Are the fittings as per Rule regarding: - spacing or shielding of live parts

Yes, accessibility of all parts Yes., absence of fuses on back of board Yes., proportion of omnibus

bars Yes., individual fuses to voltmeter, pilot or earth lamp Yes., connections of switches Yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches D.P. switch & fuses for.

Main generator, C/O switch for aux. generator, C/O switch for welding set, D.P. switch & fuses for.

Aux. generator in aux. generator compartment, S.P. switch & D.P. fuses for each outgoing circuit.

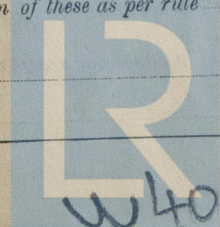
Instruments on main switchboard 2. ammeters 1. voltmeters - synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Lamp, switch &

fuse on each pole, connected to earth.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes.



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Lloyd's Register

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Cables: Single, twin, concentric, or multicore Single & Twin are the cables insulated and protected as per Tables IV or V of the Rules Yes

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 5.3 Volts

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes

Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound Yes

Cable Runs, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage Yes

Support and Protection of Cables, state how the cables are supported and protected L.C. A Banded in Engine Room supported by G.I. clips
Accommodation, L.C. Banded supported by brass clips & V.I.R. Banded in Galv. Iron Pipe. Main V.I.R. Banded in Galv. Iron Pipe.
 If cables are run in wood casings, are the casings and caps secured by screws Yes, are the cap screws of brass Yes, are the cables run in separate grooves Yes. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII Yes

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements Yes

Joints in Cables, state if any, and how made, insulated, and protected None made

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands Yes

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed Yes state the material of which the bushes are made Lead

Earthing Connections, state what earthing connections are fitted and their respective sectional areas Yes

Yes, are their connections made as per Rule Yes

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule Yes

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven Yes

Navigation Lamps, are these separately wired Yes, controlled by separate switch and separate fuses Yes, are the fuses double pole Yes, are the switches and fuses grouped in a position accessible only to the officers on watch Yes, has each navigation lamp an automatic indicator as per Rule Yes

Secondary Batteries, are they constructed and fitted as per Rule Yes

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight Yes, are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected Yes

Yes, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Yes

Yes, how are the cables led Yes

Yes, where are the controlling switches situated Yes

Searchlight Lamps, No. of Yes, whether fixed or portable Yes, are their fittings as per Rule Yes

Arc Lamps, other than searchlight lamps, No. of Yes, are their live parts insulated from the frame or case Yes, are their fittings as per Rule Yes

Motors, are their working parts readily accessible Yes, are the coils self-contained and readily removable for replacement Yes, are the brushes, brush holders, terminals and lubricating arrangements as per Rule Yes, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material Yes, are they protected from mechanical injury and damage from water, steam or oil Yes, are their axes of rotation fore and aft Yes, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type Yes, if not of this type, state distance of the combustible material horizontally or vertically above the motors Yes and Yes

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule Yes

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule Yes

Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings Yes

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office Yes

| PARTICULARS OF GENERATING PLANT. | | | | | | | | | |
|----------------------------------|-------|------------|--------|----------|----------------|-------------------|--|----------------------|--|
| DESCRIPTION OF GENERATOR. | No of | RATED AT | | | | DRIVEN BY | WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. | | |
| | | Kilowatts. | Volts. | Ampères. | Revs. per Min. | | Fuel Used. | Flash Point of Fuel. | |
| MAIN | 1 | 14 | 110 | 127 | 500 | Steam Engine | | | |
| AUXILIARY | 1 | 8 | 110 | 72 | 850 | Petrol - Paraffin | Paraffin | Below 150° F. | |
| EMERGENCY | | | | | | | | | |
| ROTARY TRANSFORMER | | | | | | | | | |

| GENERATOR, LIGHTING AND HEATING CONDUCTORS. | | | | | | | | | |
|---|---------------|--|------------------------|-----------|---------------------------------|-------|--|----------------|----------------|
| DESCRIPTION. | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. AMPERES. | | Approximate Length. (Lead and Return.) Feet. | Insulated with | HOW PROTECTED. |
| | No. per Pole. | Total Effective Area per Pole Sq. Ins. | No. | Diameter. | In Circuit. | Rule. | | | |
| MAIN GENERATOR | 1 | 0.150 | 37 | .072 | 127 | 152 | 45 | V. I. R. | L. C. Banded |
| EQUALISER CONNECTIONS | | | | | | | | | |
| AUXILIARY GENERATOR ... | 1 | 0.075 | 19 | .072 | 72 | 97 | 30 | V. I. R. | Pipe |
| EMERGENCY GENERATOR | | | | | | | | | |
| ROTARY TRANSFORMER } MOTOR GENERATOR... | | | | | | | | | |
| ENGINE ROOM... .. | 1 | 0.0225 | 7 | .064 | 35 | 46 | 50 | V. I. R. | L. C. A Banded |
| BOILER ROOM... .. | | | | | | | | | |
| AUXILIARY SWITCHBOARDS | 1 | 0.075 | 19 | .072 | 72 | 97 | 90 | V. I. R. | Pipe |
| NAVIGATION | 1 | 0.007 | 7 | .036 | 21 | 24 | 420 | V. I. R. | " |
| MIDSHIP ACCOM.* | 1 | 0.010 | 7 | .044 | 23.4 | 31 | 385 | V. I. R. | " |
| CARGO. | 1 | 0.0225 | 7 | .064 | 37.6 | 46 | 135 | V. I. R. | " |
| ENGLES & POOP. | 1 | 0.010 | 7 | .044 | 19.6 | 31 | 135 | V. I. R. | " |
| ACCOMMODATION | | | | | | | | | |
| WIRELESS | 1 | 0.007 | 7 | .036 | 21 | 24 | 420 | V. I. R. | Pipe. |
| SEARCHLIGHT | | | | | | | | | |
| MASTHEAD LIGHT | 1 | 0.002 | 3 | .029 | 0.36 | 7.8 | 600 | V. I. R. | " |
| SIDE LIGHTS | 1 | 0.002 | 3 | .029 | 0.36 | 7.8 | 85 | V. I. R. | L. C. Banded |
| COMPASS LIGHTS | 1 | 0.002 | 3 | .029 | 0.18 | 7.8 | 25 | V. I. R. | " " |
| POOP LIGHTS | | | | | | | | | |
| CARGO LIGHTS | | | | | | | | | |
| ARC LAMPS | | | | | | | | | |
| HEATERS | | | | | | | | | |

| MOTOR CONDUCTORS. | | | | | | | | | | |
|---------------------------|----------------|---------------|--|------------------------|-----------|---------------------------------|-------|--|----------------|----------------|
| DESCRIPTION. | No. of Motors. | CONDUCTORS. | | COMPOSITION OF STRAND. | | TOTAL MAXIMUM CURRENT. AMPERES. | | Approximate Length. (Lead and Return.) Feet. | Insulated with | HOW PROTECTED. |
| | | No. Per Pole. | Total Effective Area per Pole Sq. Ins. | No. | Diameter. | In Circuit. | Rule. | | | |
| BALLAST PUMP | | | | | | | | | | |
| MAIN BILGE LINE PUMPS | | | | | | | | | | |
| GENERAL SERVICE PUMP | | | | | | | | | | |
| EMERGENCY BILGE PUMP | | | | | | | | | | |
| SANITARY PUMP | | | | | | | | | | |
| CIRC. SEA WATER PUMPS | | | | | | | | | | |
| CIRC. FRESH WATER PUMPS.. | | | | | | | | | | |
| AIR COMPRESSOR | | | | | | | | | | |
| FRESH WATER PUMP | | | | | | | | | | |
| ENGINE TURNING GEAR... | | | | | | | | | | |
| ENGINE REVERSING GEAR ... | | | | | | | | | | |
| LUBRICATING OIL PUMPS | | | | | | | | | | |
| OIL FUEL TRANSFER PUMP... | | | | | | | | | | |
| WINDLASS | | | | | | | | | | |
| WINCHES, FORWARD | | | | | | | | | | |
| WINCHES, AFT | | | | | | | | | | |
| STEERING GEAR— | | | | | | | | | | |
| (a) MOTOR GENERATOR... | | | | | | | | | | |
| (b) MAIN MOTOR | | | | | | | | | | |
| WORKSHOP MOTOR | | | | | | | | | | |
| VENTILATING FANS | | | | | | | | | | |
| REFRIG. M/C | 1 | 1 | 0.0225 | 7 | .064 | 45 | 46 | 385 | V. I. R. | Pipe |
| CIRCULATING WATER PUMP. | 1 | 1 | 0.003 | 3 | .036 | 9 | 12 | 60 | V. I. R. | L. C. A Banded |

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

p. pro. THE SUNDERLAND FORGE & ENG. CO. LTD.,

Electrical Engineers.

Date 17.11.33.

COMPASSES.

Distance between electric generators or motors and standard compass 120 FEET

Distance between electric generators or motors and steering compass 120 FEET

The nearest cables to the compasses are as follows:—

A cable carrying 7 Ampères 6 feet from standard compass 6 feet from steering compass.

A cable carrying 0.18 Ampères 2 feet from standard compass 2 feet from steering compass.

A cable carrying Ampères feet from standard compass feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power Yes.

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted Yes

The maximum deviation due to electric currents was found to be Nil degrees on every course in the case of the standard compass, and Nil degrees on every course in the case of the steering compass.

LITHGOWS LIMITED.

John McFulloch Secretary

Builder's Signature.

Date 23/11/33

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "HARBURY"

General Remarks (State quality of workmanship, opinions as to class, &c.)

This installation has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found to be good and sound.

It is submitted that this vessel is eligible for THE RECORD.

Electric Light

28/11/33

Im. 9.30.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)

Total Capacity of Generators 22. Kilowatts.

The amount of Fee ... £ 18 : 10 : 0 When applied for, at 19.

Travelling Expenses (if any) £ : 6/6 When received, 28/11/33

H. Haffner Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 28 NOV 1933

Assigned Electric Light



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